

**REMARKS**

The Examiner rejected claims 26, 27, and 31-37 under 35 U.S.C. §112, second paragraph.

The Examiner objected to claims 19-25, 28-30 and 34 as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim.

The Examiner rejected to claims 18-25 and 28-30 under 35 U.S.C. §102(b) as allegedly being anticipated by United States Patent No. 4,139,465 to Nordengren.

The Examiner rejected claims 26, 27, 31, and 33-36 under 35 U.S.C. §102(b) as allegedly being anticipated by United States Patent No. 4,350,564 to Wei.

The Examiner rejected to claims 31-32 and 36 under 35 U.S.C. §102(b) as allegedly being anticipated by United States Patent No. 4,105,468 to Geshner et al.

The Examiner rejected claims 26, 27 and 33-35 under 35 U.S.C. §103(a) as allegedly being unpatentable over Geshner as discussed above, in view of, U.S. Patent No. 4,344,223 to Bulger et al.

The Examiner rejected claim 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Geshner as discussed above and United States Patent No. 5,149,404 to Blonder.

The Examiner rejected claim 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Wei as discussed above and United States Patent No. 6,228,687 to Akrami et al.

Applicants respectfully traverse the §112, §102 and §103 rejections, as well as the claim objections, with the following arguments. In addition, Applicants will discuss pertinent issues relating to 35 U.S.C. §101.

**35 U.S.C. §112**

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8

The Examiner rejected claims 26, 27, and 31-37 under 35 U.S.C. §112, second paragraph as allegedly "being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." The Examiner argues: "More specifically, claim 26 discloses "an electrical structure" wherein an "acid solution is in contact with both the iron comprising body and the chromium volume within the opening." Is the acid intended to be part of the structure or is it a treatment step? Of now it is assumed to be a treatment step and as such is accorded little patentable weight.... With respect to claim 31, here the acid is explicitly disclosed as an etchant. Is the claim a method or an apparatus with a method step? It is assumed that the latter is contemplated.

In response with respect to claim 26, Applicants note that claim 26 is claimed as a structure and has been amended in a manner that specifically claims the acid solution as a structural element and not as a method step.

In response with respect to claim 31, Applicants note that claim 31 is claimed as a structure. In claim 31, the acid solution is a structural element and not a method step.

Note that claim 31 claims the feature of: "wherein the acid solution is adapted to etch metallic chromium at a first etch rate in an absence of any present or prior contact between an iron-comprising object and the metallic chromium". Applicants maintain that said feature of claims 26 and 31 recites a property of the claimed acid solution and does not recite any method step. Applicants draw support from In Application of Venezia, 530 F.2d 956 (P. App. Cir. 1976). In Venezia, the United States Court of Customs and Patent Appeals reversed the rejection by the Patent and Trademark Office Board of Appeals of claim 31 under 35 U.S.C. §112, second paragraph as allegedly indefinite and incomplete in not defining a completed article of

manufacture. Claim 31 recited, *inter alia*: "A splice connector kit ..., the kit comprising the combination of: a pair of sleeves . . . each sleeve of said pair *adapted to be fitted* over the insulating jacket of one of said cables...." The Court stated:

"As we view these claims, they precisely define a group or "kit" of interrelated parts. These interrelated parts may or may not be later assembled to form a completed connector. But what may or may not happen in the future is *not* a part of the claimed invention. The claimed invention does include present structural limitations on each part, which structural limitations are defined by how the parts are to be interconnected in the final assembly, if assembled. However, this is not to say that there is anything futuristic or conditional in the "kit" of parts itself. For example, paragraph two of claim 31 calls for "a pair of sleeves . . . each sleeve of said pair *adapted to be fitted* over the insulating jacket of one of said cables." Rather than being a mere direction of activities to take place in the future, this language imparts a structural limitation to the sleeve. Each sleeve is so structured or dimensioned that it can be fitted over the insulating jacket of a cable.... Again, a present structural configuration for the housing is defined in accordance with how the housing interrelates with the other structures in the completed assembly. We see nothing wrong in defining the structures of the components of the completed connector assembly in terms of the interrelationship of the components, or the attributes they must possess, in the completed assembly. More particularly, **we find nothing indefinite in these claims**. One skilled in the art would have no difficulty determining whether or not a particular collection of components infringed the collection of interrelated components defined by these claims" (emphasis added).

Thus, claim 31 of Venezia simply claims a kit of parts and not the final structure derived from said kit of parts. Interestingly, the Court did not find the recited relationship between the parts in the final structure to be a method step limitation for forming the final structure, but instead found the recited relationship between the parts in the final product to be a patentable limitation in the claim of the unassembled parts. Importantly, the Court found that the claim is not indefinite under 35 U.S.C. §112, second paragraph.

Similar to Venezia, claim 31 of the present invention does not claim what may or may not happen in the future. Rather than being a mere direction of activities to take place in the future,

the language of claim 31 imparts a limitation to the acid solution. The acid solution is so configured that the acid solution can "etch metallic chromium at a first etch rate in an absence of any present or prior contact between an iron-comprising object and the metallic chromium". As in Venezia, the preceding feature of claim 31 of the present invention is not a method step limitation but instead is a patentable limitation of the acid solution.

Accordingly, Applicants respectfully maintain that claims 26, 27, and 31-37 are not indefinite under 35 U.S.C. §112, second paragraph.

35 U.S.C. §101

Although the office action mailed 07/09/2003 does not include any rejections under 35 U.S.C. §101, a telephonic interview was held on October 3, 2003 between the Examiner and Applicants' representative, and an issue pertinent to 35 U.S.C. §101 was discussed during said interview. In particular, the Examiner questioned whether the acid solution in claims 26 and 31 is a structural element of the claimed electrical structure, under the assumption that the electrical structure of claims 26 and 31 is a "manufacture" under 35 U.S.C. §101. The Examiner suggested that the acid solution may not be a structural element, because the acid is consumable and therefore would not appear in a final structure.

In light of the preceding issue raised by the Examiner, Applicants offer the following arguments in support of Applicants' position that the acid solution in claim 26 and 31 is a structural element, under the assumption that the claimed electrical structure is a "manufacture". In particular, Applicants cite case law establishing that: 1) an intermediate structure comprising a collection of interrelated parts, from which a final product may be derived, may be properly claimed as a "manufacture"; and 2) a feature of a claim, wherein the feature is consumable, is not barred from being a structural element of a claim because of its consumability.

As to the intermediate structure aspect of claims 26 and 31, Applicants cite In Application of Venezia, 530 F.2d 956 (P.App. Cir. 1976). In Venezia, the United States Court of Customs and Patent Appeals reversed the rejection by the Patent and Trademark Office Board of Appeals of claim 31 under 35 U.S.C. §101, as allegedly being drawn to a plurality of separately and discretely listed and defined manufactures instead of a manufacture. In Venezia,

the Court stated:

"We do not believe the words in question are to be so narrowly construed. To hold that the words "any manufacture" exclude from their meaning groups or "kits" of interrelated parts would have the practical effect of not only excluding from patent protection those "kit" inventions which are capable of being claimed as a final assembly (e. g., a splice connector), but also many inventions such as building blocks, construction sets, games, etc., which are incapable of being claimed as a final assembly. We do not believe Congress intended to exclude any invention from patent protection merely because it is a group or "kit" of interrelated parts. We therefore hold that a group or "kit" of interrelated parts is a "manufacture" as that term is used in section 101."

As to the issue of a consumable feature of a claim, Applicants cite, Diamond v. Chakrabarty, 447 U.S. 303 (1980). In Chakrabarty, the United States Supreme Court held that a live, human-made micro-organism is patentable subject matter under 35 U.S.C. § 101 as a "manufacture" or "composition of matter". *Id.* At 308 ("respondent's micro-organism plainly qualifies as patentable subject matter"). The particular micro-organism of issue in Chakrabarty was a human-made, genetically engineered bacterium capable of breaking down crude oil. *See id.* at 304. In supporting its holding, the Supreme Court reasoned:

"We have also cautioned that courts "should not read into the patent laws limitations and conditions which the legislature has not expressed." *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933). Guided by these canons of construction, this Court has read the term "manufacture" in § 101 in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." *American Fruit Growers, Inc. v. Brogdex Co.*, 283 U.S. 1, 11 (1931).... In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope.... The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory subject matter to "include anything under the sun that is made by man." S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)."

*Id.* At 308-09.

In light of the Supreme Court holding and analysis, Applicants respectfully maintain that

if a humanly-made bacterium is patentable as a "manufacture", then consumability of a structural element of a "manufacture" cannot preclude patentability, since a bacterium is highly consumable. Indeed, "[t]he lifetime of a bacterium (from the time it is born by division until the time it divides) can be as little as 30 minutes."

<http://www.archbiocides.com/metalworking/cddifference.asp>. In addition: "Given, suitable conditions for growth, the rate of multiplication of bacteria is very rapid; whenever experiments have been conducted to determine this rate, under conditions purposely made most favourable, it has been found that a division of a cell is repeated every 20 or 30 minutes." Encyclopedia Britannica, Vol. 2, page 903 (1957).

In addition, Applicants respectfully contend that the electrical structure of claims 26 and 31, including the acid solution, fits within the Supreme Courts definition of "manufacture," (i.e., "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery"). Also, the Supreme Court's mandate to broadly interpret the scope of a "manufacture" lends further support to Applicant's contention that the acid solution is a patentably significant element of the claimed electrical structure of claims 26 and 31.

In any event, Applicants are not aware of any case law that would preclude the acid solution from being a patentably significant element of the claimed electrical structure of claims 26 and 31. If the Examiner is aware of any case law that precludes the acid solution from being a patentably significant element of the claimed electrical structure of claims 26 and 31, then Applicants respectfully request the Examiner to provide such citation(s) with accompanying legal analysis.

In light of the preceding arguments, Applicants respectfully contend that electrical structure of claims 26 and 31 includes the acid solution as a structural element thereof.



**Claim Objections**

The Examiner objected to claims 19-25, 28-30 and 34 as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. The Examiner alleges: "Specifically the chromium volume is drawn to a future intended use as is the type of cleaning fluid. Since the cited, reference could perform in the same manner the claims are properly rejected. Claims 19-25 and 28-30 are properly rejected with independent claim 18. Claim 34, disclosing characteristics of the acid solution is not structurally limiting, and as such fails to further limit claim 31 and is properly rejected with independent claim 31."

In response, Applicants respectfully contend that:

- 1) claims 23-25 have been canceled, so that the objection to claims 23-35 is moot;
- 2) each of claims 19-22, 28-30 and 34 are drawn to a structurally limiting feature;
- 3) characteristics of the acid solution are structurally limiting as discussed *supra*; and
- 4) whether the cited reference(s) could perform in the same manner as claims 19-25 and 28-30 is irrelevant to the issue of whether claims 19-25 and 28-30 include a structurally limiting feature.

**35 U.S.C. §102**

The Examiner rejected to claims 18-25 and 28-30 under 35 U.S.C. §102(b) as allegedly being anticipated by United States Patent No. 4,139,465 to Nordengren. In response, Applicants maintain that said rejection over Nordengren is moot, since claims 18 and 23-25 have been canceled and claims 19-22 and 28-30 depend from claim 26 which has not been rejected over Nordengren.

The Examiner rejected claims 26, 27, 31, and 33-36 under 35 U.S.C. §102(b) as allegedly being anticipated by United States Patent No. 4,350,564 to Wei. In response, Applicants respectfully contend that Wei does not anticipate claims 26, 27, 31, and 33-36, because Wei does not teach each and every feature of claims 26, 27, 31, and 33-36.

For example, Wei does not teach: "an iron-comprising body ... wherein a portion of the iron-comprising body is within the opening, wherein the portion of the iron-comprising body is in electrical contact with the chromium volume" (claims 26-27); and Wei does not teach "an iron-comprising body in electrical contact with the chromium volume" (claims 31 and 33-36).

As another example, Wei does not teach: "wherein the portion of the acid solution is in contact with both the portion of the iron-comprising body and the chromium volume" (claims 26-27); and Wei does not teach "an acid solution in contact with both the chromium volume and the iron-comprising body" (claims 31 and 33-36).

Based on the preceding arguments, Applicants respectfully maintain that Wei does not anticipate claims 26, 27, 31, and 33-36, and that claims 26, 27, 31, and 33-36 are in condition for allowance.

The Examiner rejected to claims 31-32 and 36 under 35 U.S.C. §102(b) as allegedly being anticipated by United States Patent No. 4,105,468 to Geshner et al. In response, Applicants respectfully contend that Geshner does not anticipate claim 31, because Wei does not teach each and every feature of claim 31. For example, Geshner does not teach the feature: "wherein the acid solution is adapted to etch metallic chromium at a first etch rate in an absence of any present or prior contact between the metallic chromium and a body that includes iron". To the contrary, Geshner requires contact between the iron-comprising body and the chromium volume in order to etch the chromium volume with the acid solution. See Geshner, col. 2, lines 50-62 ("No immediate reaction will occur when the acid contacts either of the regions 14, 16. Next, a metal probe is brought into contact with the defect areas 16. Care must be employed to prevent the metal probe from contacting any of the adjacent desired areas 14 which are covered by acid and which are not to be removed.... **Immediately after** the probe is brought into contact with the undesired areas 16, it has been found that a reaction will be initiated which will cause only the undesired areas 16 to be completely etched away" (emphasis added)).

Based on the preceding arguments, Applicants respectfully maintain that Geshner does not anticipate claim 31, and that claim 31 is in condition for allowance. Since claims 32 and 36 depends from claim 31, Applicants contend that claims 32 and 36 are likewise in condition for allowance.

35 U.S.C. §103

The Examiner rejected claims 26, 27 and 33-35 under 35 U.S.C. §103(a) as allegedly being unpatentable over Geshner as discussed above, in view of, U.S. Patent No. 4,344,223 to Bulger et al.

Applicants respectfully contend that claim 26 is not unpatentable over Geshner in view of Bulger, because the Examiner has not provided a persuasive reason for modifying Geshner with the teaching of Bulger. The Examiner admits that "Geshner fails to explicitly disclose a layer of conductive metal on the layer of chromium wherein the conductive metal includes an opening extending through its thickness". The Examiner argues: "Bulger discloses a layer of gold (conductive) over chromium acting as an etching mask, wherein the hydrochloric acid solution is in contact with the chromium volume (column 5, lines 31-38).... It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Geshner in view of Bulger because Bulger teaches that the gold layer over the chromium volume is an effective mask when etching a pattern in the chromium volume (column 5, lines 31-38) and results in reliable, precise thin film components (column 1, lines 522 et seq.)."

In response, Applicants contend that Geshner does not need a mask to perform the method of Geshner's invention. To the contrary, Geshner discloses: "In accordance with the present invention an acid selected from Table I is placed on the surface of the photomask 10 so that it covers at least the defect area 16. The acid may, in addition, cover desired areas 14. No immediate reaction will occur when the acid contacts either of the regions 14, 16. Next, a metal probe is brought into contact with the defect areas 16. Care must be employed to prevent the metal probe from contacting any of the adjacent desired areas 14 which are covered by acid and

which are not to be removed.... Immediately after the probe is brought into contact with the undesired areas 16, it has been found that a reaction will be initiated which will cause only the undesired areas 16 to be completely etched away. The etching of each undesired area 16 will be initiated and, surprisingly, the etching will continue even if the metal probe is withdrawn from contact immediately after the undesired area 16 has been contacted. **The desired areas 14 will be unaffected by the acid covering them as long as they are not contacted by the metal probe**" (emphasis added). Geshner, col. 2, lines 46-68. Thus, Geshner's disclosed method of removing the undesired area 16 does not require a mask, because "[t]he desired areas 14 will be unaffected by the acid covering them as long as they are not contacted by the metal probe". Therefore, addition of a mask to Geshner's process, as disclosed by Bulger, is unnecessary and adds unnecessary expense and complexity to Geshner's method which is inherently simple.

Based on the preceding arguments, Applicants respectfully maintain that claim 26 is not unpatentable over Geshner in view of Bulger, and that claim 26 is in condition for allowance. Since claims 27 and 33-35 depend from claim 26, Applicants contend that claims 27 and 33-35 are likewise in condition for allowance.

The Examiner rejected claim 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Geshner as discussed above and United States Patent No. 5,149,404 to Blonder. In response, Applicants maintain that claim 37 is not unpatentable inasmuch as claim 37 depends from claim 31 which Applicants have argued *supra* is not unpatentable under 35 U.S.C. §103(a).

In addition with respect to claim 37, the Examiner admits: "Geshner does not explicitly disclose a fluoropolymer dielectric volume bonded to the chromium volume." The Examiner

argues: "Blonder discloses wherein a photoresist volume is bonded to the chromium volume (column 1, lines 20-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to bond a fluoropolymer dielectric volume to the chromium volume because fluoropolymer dielectric materials are conventionally used as photoresist masks in the etching of metallic films and the integrated electrical circuit fabrication industry and Blonder teaches that reticle masks made of chromium are ordinarily patterned by a radiation photoresist (column 1, lines 20-38). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Rens 134 USPQ 343 (CCPA 1962)."

In response to the preceding argument by the Examiner, Applicants maintain that the etching away of unwanted chromium regions 16 in Geshner occurs **after** the reticle mask has already been patterned with opaque and transparent regions. In fact, Geshner is unconcerned with the overall production of the reticle mask. Geshner is concerned only with the removal of defective areas from a mask that has already been created and includes opaque regions comprising chromium. See Geshner, col. 2, lines 20-31. Thus, there is no purpose to bonding the fluoropolymer dielectric volume to the chromium volume to pattern the mask after the mask has already been patterned. Accordingly, Applicants respectfully contend that it is not obvious to bond a photoresist volume (comprising a fluoropolymer dielectric material) to the chromium volume disclosed in Geshner.

Based on the preceding arguments, Applicants respectfully maintain that claim 37 is not unpatentable over Geshner in view of Blonder, and that claim 37 is in condition for allowance.

The Examiner rejected claim 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Wei as discussed above and United States Patent No. 6,228,687 to Akram et al. . In response, Applicants maintain that claim 37 is not unpatentable inasmuch as claim 37 depends from claim 31 which Applicants have argued *supra* is not unpatentable under 35 U.S.C. §103(a).

In addition, Wei in view of Akram does not teach or suggest the feature: "an iron-comprising body in electrical contact with the chromium volume".

In addition, Wei in view of Akram does not teach or suggest the feature: "an acid solution in contact with both the chromium volume and the iron-comprising body".

Based on the preceding arguments, Applicants respectfully maintain that claim 37 is not unpatentable over Wei in view of Akram, and that claim 37 is in condition for allowance.

**CONCLUSION**

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below.

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